4.0 Network Security

4.1 Summarize the purposes of physical security devices.

- **Detection**
  - Motion detection
  - Video surveillance
  - Asset tracking tags
  - Tamper detection
- **Prevention**
  - Badges
  - Biometrics
  - Smart cards
  - Key fob
  - Locks

4.2 Explain authentication and access controls.

- **Authorization, authentication and accounting**
  - RADIUS
  - TACACS+
  - Kerberos
  - Single sign-on
  - Local authentication
  - LDAP
  - Certificates
  - Auditing and logging
- **Multifactor authentication**
  - Something you know
  - Something you have
  - Something you are
  - Somewhere you are
  - Something you do
- **Access control**
  - 802.1x
  - NAC
  - Port security
  - MAC filtering
  - Captive portal
  - Access control lists

4.3 Given a scenario, secure a basic wireless network.

- **WPA**
- **WPA2**
- **TKIP-RC4**
- **CCMP-AES**
- **Authentication and authorization**
  - EAP
    - PEAP
    - EAP-FAST
    - EAP-TLS
  - Shared or open
  - Preshared key
  - MAC filtering
- **Geofencing**

4.4 Summarize common networking attacks.

- DoS
  - Reflective
  - Amplified
  - Distributed
- Social engineering
- Insider threat
- Logic bomb
- Rogue access point
- Evil twin
- War-driving
- Phishing
- Ransomware
- DNS poisoning
- ARP poisoning
- Spoofing
- Deauthentication
- Brute force
- VLAN hopping
- Man-in-the-middle
- Exploits vs. vulnerabilities

4.5 Given a scenario, implement network device hardening.

- Changing default credentials
- Avoiding common passwords
- Upgrading firmware
- Patching and updates
- File hashing
- Disabling unnecessary services
- Using secure protocols
- Generating new keys
- Disabling unused ports
  - IP ports
  - Device ports (physical and virtual)

4.6 Explain common mitigation techniques and their purposes.

- Signature management
- Device hardening
- Change native VLAN
- Switch port protection
  - Spanning tree
  - Flood guard
  - BPDU guard
  - Root guard
  - DHCP snooping
- Network segmentation
  - DMZ
  - VLAN
- Privileged user account
- File integrity monitoring
- Role separation
- Restricting access via ACLs
- Honeypot/honeynet
- Penetration testing